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August 11, 2000

Mr. Michael McAteer
U. S. EPA - Region 5
77 West Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3590

Re: Sauget Sites Area I - January 21, 1999 Administrative Order by Consent (AOC)
- **August 2000 Monthly Report**

Dear Mr. McAteer,

Enclosed is the August 2000 Monthly Report for Sauget Sites Area I. This submittal is in fulfillment of the monthly requirements of Section 2.4 Reporting, of the January 21, 1999 Final Administrative Order by Consent for Sauget Sites Area I, Sauget and Cahokia, Illinois.

Sincerely,

D. M. Light
Manager, Remedial Projects
Solutia Inc.

cc:
(w/enclosures)
T. Gouger - (4 data copies) - USACE
C. Morin - IEPA
Sauget File - Solutia
Village of Sauget - % P. H. Weis & Associates (Attn: Brian Nelson)
Kevin de la Bruere - USF&W
Michael L. Henry - IDNR

(w/o enclosures)
Mayor M. King - Cahokia, IL
Mayor P. Sauget - Sauget, IL

Sauget Sites Area I - Sauget, Illinois

AOC - EECA / RIFS

Monthly Report

Date of Report: August 11, 2000[1]
Period Covered: July 1, 2000 - July 31, 2000
Next Report Period: August 1, 2000 - August 31, 2000

Work Performed during the reporting period

All required field work for the Sauget Area 1 Support Sampling Plan ("SSP") was completed prior to this report period. During the month of July, the Solutia Sauget Team focused on continuing sample analyses and data validation.

Attached with this monthly report is Technical Memo No. 1, "Treatability Study Progress Report - Sauget Area I Sediments and Source Areas".

Data Submittal

Data and data maps for the following are included in this report:

- Waste - Discrete Surface (0- 0.5 ft.) VOCs
- Surface Water - VOCs
- Developed Area, Undeveloped Area, and Borrow Pit Lake Industry Specific Sediments - Chlorinated biphenyl
- Developed Area, Undeveloped Area, and Background Soil - surface (0-0.5ft.) - VOCs
- Developed Area, Undeveloped Area, and Background Soil - surface (0-0.5ft.) - Method 8280A data
- Developed Area, Undeveloped Area, and Background Soil - subsurface (3-6ft.) VOCs
- Developed Area, Undeveloped Area, and Background Soil - subsurface (3-6ft.) - Method 8280A data

Work scheduled for next reporting period

The Work will continue to focus on completion of sample analyses; completion of data validation; and compilation / interpretation of the data.

[1] Per verbal agreement between M. Light and M. McAteer 8-10-00, monthly report delayed in order to prepare and send additional copies of the test results as reported in this monthly report.

Solutia plans to submit two documents to the Agency in the next monthly report on September 10, 2000. One document will be the Field Sampling Report which describes all the work conducted as part of the Support Sampling Plan. The second document will be the Data Validation Report which describes the data validation process. A third submittal will be the data base which will include all chemical analyses.

Future submittals include the Data Report, the Human Health Risk Assessment and Ecological Risk Assessment. All three of these reports will be submitted on January 9, 2001 pursuant to the AOC. To facilitate preparation of the EE/CA and RI/FS Reports, Solutia plans to prepare one Remedial Investigation ("RI") Report. This RI Report, which will be submitted at the same time as the Data Report, will provide site background information and discuss the data collected during implementation of the Site Sampling Plan. The focus of the RI Report will be:

- Site Description and Background - Previous Removal Actions
- Source, Nature and Extent of Contamination - Fate and Transport

Problems and Solutions

1. In a March 16, 2000 letter to EPA, Solutia requested permission to replace the Data Validation Plan prepared by Environmental Standards, Inc. ("ESI"), identified as Volume 4 of the approved September 9, 1999 Support Sampling Plan, with a February 2000 Data Validation Plan, Volumes I and II, prepared by O'Brien & Gere ("OBG"). This change request was necessitated when Solutia was unable to reach agreement with ESI on the scope and cost of data validation, management and mapping for Sauget Area I Support Sampling Plan. As a result of these disagreements, Solutia solicited competitive bids and selected OBG based on the quality of their proposal, experience of their team and competitive price for data validation, management and mapping. Solutia believes there are no substantial differences between the two plans. This request was verbally approved by Mike McAteer in a phone call on July 11, 2000.

Submittal Schedule Status

See attached schedule - consistent with the approved SSP - as revised where indicated.

Issues under review

NONE

Comments:

None

January 21, 1999 Sauget Area I AOC
SCHEDULE

(11/99 Revision)

1. Designation of Contractor	Completed 3/10/99[2]
2. Designation of Other Contractors	5 Business Days Before Start of Work
3. Designation of Project Coordinator	Completed
4. Submit Support Sampling Plan (SSP)	Submitted February 22, 1999
5. Submit Revised SSP	April 8, 1999[3] June 25, 1999[4] August 13, 1999[5] **September 9, 1999[6] Approval**
6. Obtain Access Agreements	July 1, 1999[7] September 17, 1999[8] October 1, 1999[9]
7. Submit Health and Safety Plan (HASP)	Approved September 9, 1999
8. Submit Quality Assurance and Sampling Plan (QAPP)	Approved September 9, 1999

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[2] Per March 10, 1999 memo DML to M. McAteer re "Notification of Contractors and Contractor Qualifications"

[3] Per 3/19/99 e-mail from M. McAteer to M. Light, AOC schedule modified to "21 days after receipt of U. S. EPA comments from the February 22, 1999 SSP submittal". U. S. EPA comments on the 2/22/99 SSP submittal were received 3/19/99. Revised SSP submitted to U. S. EPA April 8, 1999 and disapproved June 3, 1999.

[4] April 8, 1999 SSP submittal disapproved June 3, 1999. Revised plan due to the Agency June 25, 1999. Revised plan submitted June 25th as required.

[5] June 25th SSP submittal disapproved July 16, 1999 and resubmitted August 13, 1999.

[6] August 13, 1999 SSP submittal as revised August 30, 1999 and September 7, 1999 received final Agency approval on September 9, 1999.

[7] Per 5/21/99 phone call from M. McAteer to M. Light, AOC schedule modified to "July 1, 1999 with interim report due on June 15, 1999", consistent with Solutia's request in a May 18, 1999 Access report and request for extension.

[8] Access agreements update issued August 15, 1999 with request to extend deadline to September 17, 1999. Extensions to September 17, 1999 was granted by Mike McAteer in an August 17, 1999 e-mail to Mike Light.

[9] Access agreements update issued September 17, 1999 with request to extend deadline to October 1, 1999. Extensions to October 1, 1999 was granted by Mike McAteer in a September 21, 1999 e-mail to Mike Light

January 21, 1999 Sauget Area I AOC

SCHEDULE (Cont.)
(11/99)

9. Sampling Notification	10 Business Days Prior to Start of Work[10]
10. Submit Data Report	**01/09/01**[11]
11. Submit EE/CA Report	60 Calendar Days After Data Report Submittal - **03/09/01**
12. Submit Revised EE/CA Report	21 Calendar Days After Receipt of EPA Comments
13. Submit RI/FS Report	90 Calendar Days After Data Report Submittal - **04/09/01**
14. Submit Revised RI/FS Report	21 Calendar Days After Receipt of EPA Comments
15. Progress Reports	Monthly Beginning February 19, 1999[12]

[10] Notification given on August 19, 1999 that Air Sampling will begin on September 7, 1999. Per 9-2-99 phone conversation with Mike McAteer, the 10 day notification requirement can be treated as a "Day 1" requirement only, which has already been met.
[11] Per SSP - 16 mo. from SSP approval date of 9/9/99.
[12] Pursuant to decisions in 9-1-99 EPA Kickoff Meeting - Report period for the monthly report will be changed to the calendar month to coincide with project field work - due on the 10th of the month.

TECHNICAL MEMO NO. 1

TREATABILITY STUDY PROGRESS REPORT
SAUGET AREA 1 SEDIMENTS AND SOURCE AREAS

In accordance with Section 12.0 of the Sauget Area 1 Engineering Evaluation/Cost Analysis (EE/CA) and Remedial Investigation/Feasibility Study (RI/FS) Support Sampling Plan (SSP) dated June 25, 1999, a pilot treatability sampling program is to be performed as part of the evaluation of remedial alternatives for sediments and source areas. Leachate treatability pilot tests are being conducted separately and are not discussed in this report. Soil and sediment samples collected during implementation of the sampling plan were to be subsequently submitted to qualified and permitted contractors for pilot and bench scale testing using low temperature thermal desorption, incineration and stabilization technologies. The sampling program involved collection of soil and sediment samples from pre-determined locations within defined source areas and pre-selected creek segments (Dead Creek) as specified in the SSP. The selection of sampling locations within each area was determined by reviewing boring logs complete with geology information and photo-ionization detector (PID) measurements that were obtained during implementation of the SSP. These data were reviewed and locations were selected that were determined to be representative of the material in each respective area.

The pilot testing for incineration was to be performed at an off-site facility since incinerator units are typically not mobile. The media that were required by the SSP to be pilot tested using incineration as the technology were materials from the source areas. The pilot testing for thermal desorption was to be conducted on site since thermal desorption units are typically mobile and less expensive to operate locally. The media that were required by the SSP to be pilot tested using thermal desorption were materials from the source areas and sediments from Dead Creek. Pilot treatability tests for stabilization were to be conducted on Dead Creek sediments only at an off-site laboratory. However, after recent conversations between representatives of Solutia Inc. and Region V of the United States Environmental Protection Agency (USEPA), a determination was made that pilot testing of the Dead Creek sediments would not be necessary since this material is to be removed and placed in an on-site containment cell. Thus, these pilot testing procedures only involve materials from the source areas.

The purpose of the pilot treatability sampling and testing is to determine if low temperature thermal desorption and incineration are feasible technologies to treat materials collected from specified areas discussed above. Ideally, the pilot testing would involve sample profiling to determine specific parameters related to the sample's characteristics (i.e. moisture content, percent soil, grain size, etc.), and analyzing the sample in a laboratory to determine what chemical constituents are initially present. Furthermore, the test should include

implementation of a trial run (or bench scale run) of the sample. A trial run involves running a portion of the sample through a thermal desorption or incineration unit (or a scaled down unit). By performing a trial run, valuable data are gathered that eliminate most of the uncertainty related to the feasibility of each respective technology. However, state and federal permits must be in place prior to conducting thermal treatment activities if certain chemical compounds are present in the sample. Based on historical data for samples collected and analyzed at the Sauget site, polychlorinated biphenyls (PCBs) and dioxins are known to be present. In order to thermally treat materials with these constituents, the facility must be permitted under provisions of the Resource Conservation and Recovery Act (RCRA) and Toxic Substance Control Act (TSCA).

Currently, the pilot testing samples from source areas have been collected and are stored in five-gallon plastic containers on site. Approximately eight cubic feet of soil (or 60 gallons) were collected in mid-April for pilot testing purposes. A search was concurrently performed for vendors who are qualified to perform incineration and have the requisite RCRA and TSCA permits. One facility, Safety Kleen, in Coffeeville, Kansas was identified. A generator waste profile was completed and sent to Safety Kleen along with a one-quart sample. Safety Kleen personnel analyzed the sample in their on-site laboratory and reviewed the generator waste profile. The results from this analysis indicate that the material might be capable of incineration; however, several problems were identified. One problem involves the presence of volatile metals in the samples. During incineration, these metals will generate significant off-gasses and cause non-compliances with the facility's air permit. A second problem caused by the presence of metals in high concentrations is the disposal of the ash, which will be produced at the conclusion of the incineration process. Since the metals are elements and will not be destroyed during the thermal treatment process, the thermally treated ash will have a higher concentration of metals than the original material. Thus, secondary treatment of the ash (such as solidification) may be necessary prior to disposal and would greatly affect the cost. A third problem identified involves the heterogeneous nature of source area waste and associated materials handling problems. Large pieces of concrete, brick and other debris are present and will cause problems in feeding the material into the incineration unit. Finally, the cost to haul all of the source area material from Cahokia, Illinois to Coffeeville, Kansas would be high.

To determine the possibility of off-site incineration pilot testing, Mr. Lance Richards of Roux Associates, Inc. contacted Messrs. Bill Waltrip and Bob Kenworthy of Safety Kleen by telephone. Mr. Waltrip and Mr. Kenworthy both agreed that a pilot test would require approximately 40 cubic yards of material and that their on-site incinerator would have to be modified to treat the gas emissions while burning. Towards the conclusion of the conversation, it was concurred that a pilot test would not be feasible due to the amount of sample required, the problems associated with high metal concentrations, and

the down time of their incinerator.

A concurrent search has been conducted to locate qualified vendors with thermal desorption capabilities that are permitted under the provisions of RCRA and TSCA. No vendors were located; however, several vendors indicated that they could perform the treatment studies if certain actions were taken. One vendor, Purgo Inc., claims that they could perform thermal desorption activities on PCB-contaminated materials if they were to transport the material to Canada where RCRA and TSCA requirements do not apply. Roy F. Weston reported that they could possibly get a provision from the State of Pennsylvania to thermally treat PCB and dioxin containing materials on a temporary research and development basis. This provision, however, would require at least 90 days to obtain approvals and still may be declined. Lastly, Separation and Recovery Systems (SRS) claims that they may be able to obtain a provision from the State of Illinois and conduct the testing at the Sauget site. This option would involve mobilization and possible concerns from the public and the USEPA. From the information that was gathered while searching for a thermal desorption contractor with sufficient permits, it was concluded that no thermal desorption vendors currently exist which have both the required RCRA and TSCA permits.

Other problems with thermal desorption were determined while discussing pilot testing possibilities with contractors. The main problem that was identified is that thermal desorption does not reach high enough temperatures to destroy PCBs. According to technical personnel at Roy F. Weston, Safety Kleen and SRS, temperatures must reach a minimum of 2,200 degrees Fahrenheit to achieve the required 99.99 percent destruction rate (referred to as "four nines destruction") that is required by RCRA. Thermal desorption units rarely exceed 1,800 degrees Fahrenheit temperatures. Secondly, many problems between the public, generator and the USEPA have historically occurred in Region V concerning thermal treatment. Considering the historical public concerns, the technical ineffectiveness in destroying PCBs, and the lack of contractors holding both RCRA and TSCA permits, this remedial alternative is unattractive.

In summary, pilot treatability testing has been determined to be infeasible for both thermal treatment and incineration technologies due to technical and permitting limitations. In both cases, actual field implementation would incur significant excavation and materials handling problems associated with removing the source area material for transport or on-site treatment. Anticipated local air emission problems and exposure risks coupled with materials handling safety and transportation risks significantly curtail the feasibility of pursuing either option as a final remedy. Given that thermal desorption will not achieve required destruction efficiencies of PCBs and that incineration would result in volatile metals emissions and subsequent disposal problems, it is strongly recommended that future remedies focus on cover and containment options that will allow source area waste to be left in place.